

Senior Project Presentations

day 60

eye contact
speak clearly

tone

energy

Confidence

posture

no filler crap
avoid the
appearance
of moronity

dress nice
"presentation
of you"

be prepared

"good content"

practice
- time &
- thought

Understand what you are talking about

Good Writing

day 60

organized

diction

→ vocabulary
→ sentence structure
→ grammar

attention of reader

good topic → audience's perspective
focused - on single topic...

scratch paper
vs
work
use of
space

— — —
— — —
— — —
— — —

what msg are
you communicating?

$$\frac{d}{dx}((x+1)(x^2-3)) = 1(x^2-3) + (x+1)(2x)$$

$$= x^2-3 + 2x^2+2x$$

when there is a function like that

It ...

4.1/82) $f(x) = \frac{x}{(x^2+1)^n}$

$$f(-x) = \frac{-x}{((-x)^2+1)^n}$$

$$= \frac{-x}{(x^2+1)^n} = -\frac{x}{(x^2+1)^n}$$

$$\rightarrow -f(x)$$

symmetric
about
y-axis

$$f(-x) = f(x)$$

$$f(x) = x^2$$

$$f(2) = 4$$

$$f(-2) = (-2)^2 = 4$$

odd fn

$$f(-x) = -f(x)$$

symmetric
about origin

$y = x$
 x^3
 x^5
 $\sin x$

b) $\frac{d}{dx} \left(\frac{x}{(x^2+1)^n} \right)$

$$= \frac{d}{dx} \left(x (x^2+1)^{-n} \right)$$

$$= (x^2+1)^{-n} + x \left[-n(x^2+1)^{-n-1} \cdot 2x \right]$$

$$= \frac{1}{(x^2+1)^n} - \frac{2nx^2}{(x^2+1)^{n+1}}$$

$$= \frac{x^2+1}{(x^2+1)^{n+1}} - \frac{2nx^2}{(x^2+1)^{n+1}} = 0$$

$$x^2+1-2nx^2=0$$

$$(1-2n)x^2 = -1$$

$$x^2 = \frac{-1}{1-2n}$$

$$x = \pm \sqrt{\frac{-1}{1-2n}}$$

$$\pm \frac{1}{\sqrt{-(1-2n)}} = \pm \sqrt{\frac{+1}{-(1-2n)}}$$

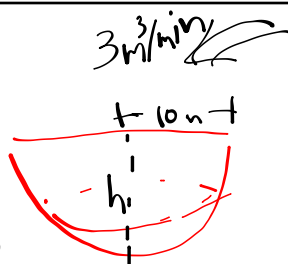
$$= \pm \frac{1}{\sqrt{2n-1}}$$

c) $f(x) = \frac{\pm \frac{1}{\sqrt{2n-1}}}{\left[\left(\pm \frac{1}{\sqrt{2n-1}} \right)^2 + 1 \right]^n} = \frac{\pm \frac{1}{\sqrt{2n-1}}}{\left(\frac{1}{2n-1} + 1 \right)^n} \rightarrow 0$

day 60

3.11/33

want:
 $\frac{dh}{dt}$ when
 $h=5m$



$$V_{\text{sphere}} = \frac{4}{3}\pi r^3$$

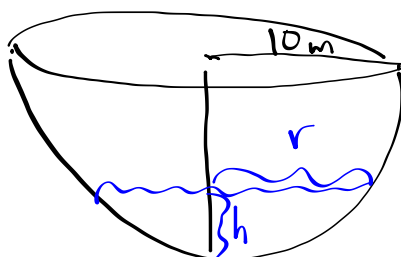
$$V_{\text{hemisphere}} = \frac{1}{2} \left(\frac{4}{3}\pi r^3 \right)$$

$$= \frac{2}{3}\pi r^3$$

$$V_{\text{slice of sphere}} = \frac{\pi}{3} h^2 (3r - h)$$

$$\frac{dV}{dt} = \frac{\pi}{3} \left[2h \frac{dh}{dt} (3r - h) \right]$$

3.11/33)
the
real
gro



day 60

$$\text{SA of exposed water} = \pi r^2$$

$$\frac{dSA}{dt} = 2\pi r \frac{dr}{dt}$$

When $h = 5\text{m}$,
 $r = ?$

$$\frac{dr}{dt} = ?$$